

RESEARCH DEPARTMENT

A RE-SURVEY OF THE SERVICE AREA OF
THE SUTTON COLDFIELD TELEVISION TRANSMITTER

Report No. K-144

(1960/9)

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SUMMARY

This report gives the results of a more detailed field strength survey of the Sutton Coldfield television transmitter than was possible when the original survey was made in 1950.

1. INTRODUCTION

The Sutton Coldfield television transmitter came into service on 17th December 1949. A survey was carried out early in 1950, before the transmitting conditions were finalised, and a report was issued.¹ A re-survey of the transmitter has now been completed and the results are presented in this report.

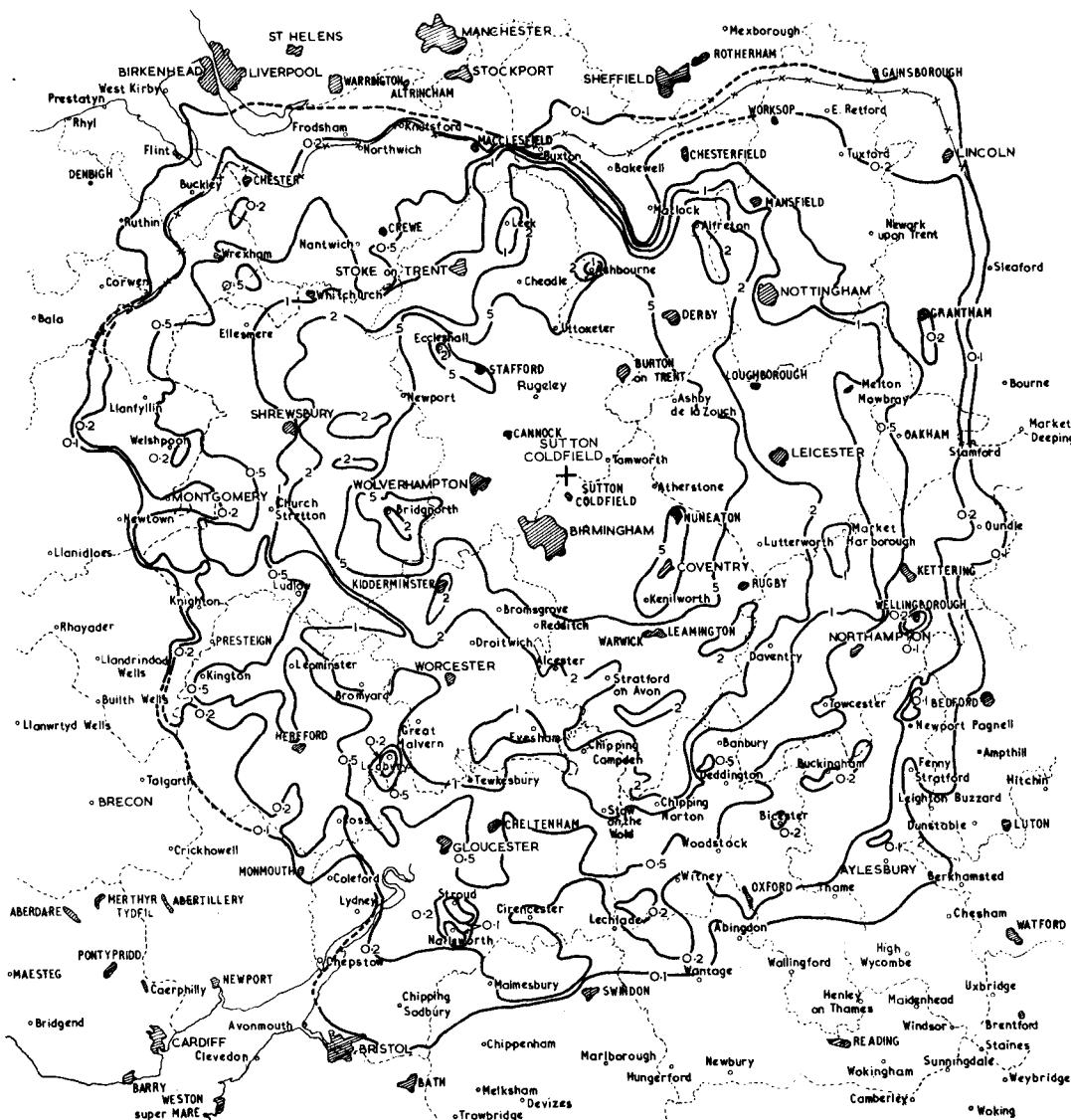
2. GENERAL

The Sutton Coldfield transmitter is situated 9 miles (14 km) north of Birmingham. The site height is 555 ft (169 m) above mean sea level. The vision transmission, on Channel 4, 61°75 Mc/s (sound 58°25 Mc/s), is provided by a 50 kW transmitter driving an aerial consisting of two tiers each of four vertical dipoles. The aerial, mounted 735 ft (224 m) above ground level, is omnidirectional, the effective radiated power (e.r.p.) is 100 kW and the polarization is vertical.

3. RESULTS

The results of the survey are presented in a field strength contour map, Fig. 1, while details of the field strength in towns surveyed which have a population of 2,000 or more are given in the Appendix.

The map calls for little comment. The service area is free from U.K. co-channel interference for 90% of the time to a field strength level of 0.1 mV/m or less, except near its northern boundary. This area is better served by Holme Moss. As a result of many more measurements the contour map (Fig. 1) is much more detailed than that issued earlier.¹



NOTE:-

The contours represent the field strength in mV/m 30 ft (9.1m) above ground exceeded at 50% of the receiving sites in a given locality. The value exceeded at 90% of the receiving sites may be as much as 10 dB below the value indicated by the contours particularly in hilly and built-up areas.

— X — Limit of service area free from perceptible co-channel interference for 90% of the time. The protection ratio on which the estimates are based is 30 dB with a reduction of 10 dB for crossed-polarization.

Population within:-	
5 mV/m	2,935,800
0.5mV/m	6,535,700
0.1mV/m	8,699,900

SUTTON COLDFIELD CHANNEL 4 (61.75 Mc/s) (MEASURED)

SITE HEIGHT: 555ft (169m) AMSL
AERIAL HEIGHT: 735ft (224m) AGL
E.R.P.: 100 kW
POLARIZATION: VERTICAL
AERIAL: TWO TIERS EACH OF FOUR DIPOLES (PHASE ROTATION)
H.R.P: OMNIDIRECTIONAL

Fig.1

4. CONCLUSIONS

The service area of the Sutton Coldfield transmitter is substantially the same as stated in Research Department Report No. K-078. The main differences are:

- (i) almost the whole of Gloucestershire is now shown within the service area;
- (ii) there is a small reduction in areas of Lancashire and Yorkshire within the 0.1 mV/m contour.

Neither difference is of any consequence, as both areas are better served by adjacent transmitters.

5. REFERENCE

1. "The Service Area of the Sutton Coldfield Television Transmitter", Research Department Report No. K-078, Serial No. 1950/13.

APPENDIX

Field strength in mV/m at 30 ft (9.1 m) A.G.L.

E.R.P. = 100 kW

Town	Field strength exceeded at stated percentage locations			Town	Field strength exceeded at stated percentage locations			
	10% 50% 90%				10% 50% 90%			
Abingdon	0.13	0.08	0.05	Charlton Kings	0.79	0.5	0.28	
Alcester	2.4	1.7	0.79	Cheddleton	1.3	0.4	0.19	
Almondsbury	0.67	0.5	0.4	Cheltenham	1.1	0.6	0.33	
Alvechurch	13	6.7	3.2	Chester	0.38	0.2	0.05	
Amblecote	4.5	2.2	1.0	Chesterfield	0.42	0.2	0.1	
Ashbourne	3.5	0.75	0.32	Chipping Campden	2.7	1.4	0.71	
Ashby de la Zouch	25	14	6.3	Chipping Norton	3.3	1.7	0.79	
Astwood Bank	10	6.3	5.0	Chirk	0.47	0.35	0.24	
Atherstone	16	11	7.9	Church Stretton	3.2	0.89	0.18	
Aylesbury	0.17	0.11	0.07	Cinderford	0.4	0.15	0.07	
Bakewell	0.3	0.16	0.08	Cirencester	0.25	0.1	0.05	
Balsall	30	15	10	Clay Cross	1.8	1.3	0.84	
Banbury	1.5	0.89	0.37	Coalville	13	8.4	5.0	
Beeston	2.1	1.3	0.75	Coleshill	120	71	38	
Bedford	0.13	0.08	0.06	Congleton	0.56	0.3	0.13	
Bedworth	6.7	4.5	2.8	Connah's Quay	0.22	0.13	0.07	
Bewdley	7.9	1.9	0.53	Coseley	94	45	30	
Bicester	0.28	0.18	0.11	Coventry	6.3	3.7	2.1	
Bidford-on-Avon	2.0	1.1	0.53	Cranfield	0.27	0.18	0.15	
Birmingham	110	32	11	Crewe	0.6	0.42	0.28	
Bishops Cleeve	0.75	0.56	0.33	Daventry	2.2	1.2	0.56	
Blaby	4.0	2.2	1.1	Derby	7.9	3.7	1.8	
Black Bourton	0.24	0.17	0.11	Desborough	0.71	0.3	0.2	
Blackheath	56	30	16	Donnington	0.08	0.06	0.04	
Bletchley	0.17	0.08	0.05	Droitwich	2.5	1.4	0.94	
Blidworth	2.1	0.56	0.27	Dudley	53	30	19	
Bolsover	2.1	1.1	0.53	Earl Shilton	10	5.6	4.2	
Boughton	0.37	0.27	0.18	East Retford	0.22	0.14	0.07	
Bourne	0.12	0.08	0.06	Eastwood	5.0	3.5	2.0	
Brackley	0.63	0.35	0.17	Eccleshall	2.4	1.8	1.1	
Brierley Hill	16	7.9	3.5	Ellesmere	0.94	0.67	0.21	
Broadway	1.3	0.84	0.6	Evesham	1.5	0.75	0.33	
Bromsgrove	4.7	2.2	1.0	Eynsham	0.2	0.14	0.09	
Buckingham	0.25	0.1	0.05	Fairfield	8.9	5.6	3.3	
Bulkington	7.5	5.6	2.8	Fairford	0.15	0.09	0.05	
Burton-on-Trent	28	14	10	Farnsfield	0.56	0.35	0.15	
Buxton	0.63	0.18	0.06	Flint	0.13	0.09	0.04	
Castle Donnington	1.5	1.0	0.4					
Chapel en le Frith	0.28	0.08	0.04					

Town	Field strength exceeded at stated percentage locations			Town	Field strength exceeded at stated percentage locations		
	10%	50%	90%		10%	50%	90%
Gainsborough	0.18	0.09	0.06	Mansfield	0.89	0.4	0.22
Gloucester	0.45	0.24	0.1	Market Drayton	2.0	1.3	0.67
Godmanchester	0.12	0.07	0.04	Market Harborough	0.79	0.56	0.3
Gornalwood	14	4.0	2.4	Market Rasen	0.11	0.08	0.04
Grantham	0.35	0.18	0.08	Melton Mowbray	0.79	0.56	0.3
Great Malvern	20	4.7	1.8	Middlewich	0.3	0.17	0.11
				Mold	0.28	0.16	0.09
Hadley	1.8	1.1	0.75	Monmouth	0.32	0.12	0.05
Hagley	4.5	2.4	1.3	Much Wenlock	4.2	2.8	1.3
Halesowen	11	5.0	2.2				
Haslington	0.63	0.47	0.32	Nailsworth	0.14	0.05	0.04
Heanor	3.0	1.1	0.42	Nantwich	0.5	0.35	0.2
Hereford	0.45	0.27	0.17	Narborough	3.3	2.0	1.2
Heswall	0.3	0.18	0.14	Newark-on-Trent	0.49	0.3	0.15
Higham	4.7	3.5	2.7	Newent	0.53	0.22	0.12
Higham Ferrers	0.42	0.2	0.13	Newport (Salop)	4.5	2.1	1.1
Hinckley	13	9.0	5.0	Newport Pagnell	0.22	0.13	0.09
Hucclecote	0.56	0.28	0.15	Newton	0.14	0.09	0.05
Huntingdon	0.12	0.06	0.04	Northampton	0.75	0.37	0.21
				North Hinksey	0.32	0.15	0.11
Kempston	0.1	0.07	0.06	Northwich	0.45	0.3	0.14
Kenilworth	6.7	3.3	1.4	Nottingham	2.8	0.84	0.3
Kettering	0.45	0.24	0.11	Nuneaton	7.5	3.2	2.0
Kidderminster	5.0	1.7	0.71				
Kidlington	0.28	0.2	0.15	Oakengates	17	5.3	2.7
Kirkby in Ashfield	2.7	1.7	0.89	Oakham	0.33	0.25	0.13
Knowle	22	18	15	Oldbury	24	13	6.3
Knutsford	0.3	0.2	0.09	Olney	0.11	0.06	0.05
				Ombersley	2.5	1.4	0.89
Leamington Spa	10	4.5	1.7	Oswestry	1.3	0.79	0.35
Ledbury	0.22	0.11	0.06	Oundle	0.21	0.11	0.06
Leek	2.2	0.71	0.28	Overseal	63	36	20
Leicester	2.5	1.0	0.42	Oxford	0.4	0.2	0.1
Leominster	0.5	0.32	0.11				
Lincoln	0.25	0.13	0.08	Painswick	0.47	0.21	0.12
Link Malvern	3.2	2.2	1.5	Penkridge	13	8.9	4.7
Llangollen	0.42	0.2	0.07	Pershore	1.1	0.67	0.42
Long Eaton	2.7	1.7	0.94	Pontesbury	0.84	0.56	0.32
Loughborough	1.8	1.1	0.63	Princes Risborough	0.24	0.15	0.1
Ludlow	1.3	0.47	0.15				
Lutterworth	4.5	2.2	0.94	Quarry Bank	12	5.0	3.3
Macclesfield	0.84	0.4	0.16	Radcliffe-on-Trent	1.3	0.84	0.45
Madeley	11	5.3	2.5	Raunds	0.21	0.09	0.05
Malmesbury	0.33	0.14	0.05	Redditch	10	4.5	2.1
Malvern Wells	19	12	6.8	Rhosllanerchrugog	2.4	1.5	1.0

Town	Field strength exceeded at stated percentage locations			Town	Field strength exceeded at stated percentage locations		
	10%	50%	90%		10%	50%	90%
Ross-on-Wye	0.25	0.16	0.08	Thurmaston	2.5	1.3	0.75
Rothwell	0.63	0.22	0.13	Tipton	94	50	28
Rowley Regis	15	7.1	3.0	Towcester	0.56	0.28	0.17
Ruabon	0.89	0.56	0.25	Tring	0.18	0.12	0.07
Rubery	25	16	9.4				
Ruddington	1.9	1.3	0.79	Uttoxeter	4.0	2.2	1.1
Rugby	4.2	2.8	1.8				
Rushden	0.38	0.2	0.11	Waddington	0.75	0.53	0.45
Ruthin	0.18	0.08	0.05	Walsall	67	27	12
Sandbach	1.0	0.71	0.45	Waltham-in-the-Wolds	2.8	2.1	1.4
Sandiace	2.5	1.3	0.63	Wantage	0.19	0.09	0.04
Sedgeley	67	45	25	Warwick	4.0	2.0	1.1
Shepshed	3.2	2.1	1.1	Wednesbury	56	32	13
Shifnal	5.0	3.2	1.5	Wellingborough	0.18	0.09	0.05
Shrewsbury	2.0	0.89	0.5	Wellington	2.0	1.1	0.6
Sleaford	0.16	0.09	0.06	Welshpool	0.56	0.32	0.19
Southwell	0.35	0.2	0.14	Wem	1.8	1.2	0.63
Spalding	0.12	0.08	0.05	West Bromwich	63	38	13
Stafford	5.3	3.0	1.4	Wheelock	1.1	0.63	0.4
Stamford	0.09	0.06	0.04	Whitchurch	1.2	0.71	0.35
Stoke-on-Trent	2.7	1.3	0.67	Whittington	1.3	0.71	0.47
Stourbridge	11	4.7	1.2	Wigston Magna	4.0	1.8	1.0
Stourport-on-Severn	2.5	1.6	0.89	Willanham	47	27	16
Stratford-upon-Avon	2.1	1.0	0.6	Wilnecote	120	100	45
Stroud	0.35	0.09	0.05	Winchcombe	0.94	0.63	0.4
Studley	5.3	3.7	2.4	Winsford	0.45	0.33	0.2
Sutton-in-Ashfield	1.6	1.1	0.63	Witney	0.32	0.13	0.09
Swadlincote	60	22	9.4	Wollaston	0.67	0.35	0.18
Syston	2.0	1.3	0.75	Wolverhampton	32	12	5.3
Tamworth	130	75	30	Wolverton	0.53	0.25	0.16
Tetbury	0.19	0.11	0.06	Wootton Bassett	0.11	0.05	0.03
Tewkesbury	2.8	1.6	0.79	Wootton Wawen	4.0	2.5	1.3
Thame	0.15	0.11	0.08	Worcester	2.1	1.1	0.5
				Wrexham	0.89	0.47	0.27
				Wythall	20	16	10